



**JUL 14 2009**

**LR-N09-0142**

**10CFR50.73**

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-001

Hope Creek Generating Station Unit 1  
Facility Operating License No NPF-57  
Docket No. 50-354

Subject: Licensee Event Report 2009-004

In accordance with 50.73(a)(2)(iv)(A), PSEG Nuclear LLC is submitting Licensee Event Report (LER) Number 2009-004.

Should you have any questions concerning this letter, please contact Mr. Timothy R. Devik at (856) 339-3108.

No regulatory commitments are contained in the LER.

Sincerely,

A handwritten signature in cursive script that reads "John F. Perry".

John F. Perry  
Plant Manager  
Hope Creek Generating Station

Attachment: Licensee Event Report 2009-004

JE22  
NRR

cc: Mr. S. Collins, Administrator – Region 1  
U.S. Nuclear Regulatory Commission  
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Mr. R. Ennis, Project Manager Salem and Hope Creek  
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USNRC Senior Resident Inspector – Hope Creek (X24)

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Bureau of Nuclear Engineering  
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Hope Creek Commitment Tracking Coordinator

**LICENSEE EVENT REPORT (LER)**(See reverse for required number of  
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Hope Creek Generating Station	<b>2. DOCKET NUMBER</b> 05000 354	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Multiple Control Rod Drifts Resulting in a Reactor Scram

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	17	2009	2009	- 004 -	000	07	14	09	N/A	
									FACILITY NAME	DOCKET NUMBER
									N/A	

<b>9. OPERATING MODE</b> 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)</b>			
<b>10. POWER LEVEL</b> 100	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A	

**12. LICENSEE CONTACT FOR THIS LER**

<b>FACILITY NAME</b> Timothy R. Devik, Compliance Engineer	<b>TELEPHONE NUMBER (Include Area Code)</b> 856-339-3108
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	LE	TBG							

**14. SUPPLEMENTAL REPORT EXPECTED****15. EXPECTED SUBMISSION DATE**☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO**MONTH DAY YEAR**

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On May 17, 2009, at approximately 0335, an automatic scram signal was received due to a low RPV water level condition when multiple control rod drives (CRDs) inserted into the reactor core causing lower reactor power and the collapse of voids in the core.

The multiple CRD motion was caused by an air leak on the scram air header at hydraulic control unit (HCU) 22-11 (corrective action program (CAP) number: 20415621). The leak was from the separation of a copper solder connection which had been previously identified as having an air leak, but which was not entered into the corrective action process for resolution due to an oversight while reviewing diagnostic test data. The root cause investigation (RCE) determined that there were inconsistent expectations for the supplemental personnel's reporting of test or inspection results that led to the degraded condition not being correctly identified in the CAP to initiate timely repair.

An ENS notification (number 45074) was made in accordance with 10CFR50.72(b)(2)(iv)(B) -- an event or condition that results in actuation of the reactor protection system when the reactor is critical. This event is also reportable under 50.73(a)(2)(iv)(A) for actuation of a system listed in 50.73(a)(2)(iv)(B)(1) -- reactor protection system (RPS).

NRC FORM 366A  
(9-2007)

# LICENSEE EVENT REPORT (LER) U.S. NUCLEAR REGULATORY COMMISSION

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**NARRATIVE****PLANT AND SYSTEM IDENTIFICATION**

General Electric – Boiling Water Reactor (BWR/4)  
 Essential Instrument Air System – {LE}  
 Tubing – {TBG}

\*Energy Industry Identification System {EIIIS} codes and component function identifier codes appear as {SS/CCC}

**IDENTIFICATION OF OCCURRENCE**

Event Date: May 17, 2009  
 Discovery Date: May 17, 2009

**CONDITIONS PRIOR TO OCCURRENCE**

Hope Creek was in Operational Condition 1 at 100% reactor power. No structures, systems or components were inoperable at the time of discovery that contributed to the event.

**DESCRIPTION OF OCCURRENCE**

At 0335 on May 17, 2009, the control room received indication of CRD motion into the core. The control room crew noted several CRDs inserting into the left side of the core and a corresponding lowering of reactor power. While the operator at the controls was taking action to insert a manual scram, an automatic RPS scram signal was received due to a low RPV level condition caused by the collapse of voids as CRDs inserted, lowering reactor power.

Subsequent investigation revealed that a solder joint on the scram air header {LE/TBG} at HCU 22-11 separated and depressurized the scram air header which caused the multiple control rod insertions by removing air from the scram pilot valves of the HCUs.

The solder joint had been previously identified in September 2008 as having an air leak. Supplemental personnel were used to perform the diagnostic testing to identify air leaks on the scram air header. 39 items were identified and provided in the test results to the system manager. The supplemental personnel did not submit a CAP notification other than as a report of the conditions found. The system manager generated CAP notifications to repair the identified discrepancies, however the solder leak at HCU 22-11 was missed and no CAP notification was generated.

During RF15, repairs commenced on the identified leaks from the September testing. The leak at HCU 22-11 was not repaired because no CAP notification was written to repair the leak. On May 17, 2009, the leaking solder joint failed, causing multiple CRD movement and reactor scram.

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**NARRATIVE**

**SAFETY CONSEQUENCES AND IMPLICATIONS**

The air leak caused CRD movement into the core and a resultant reactor scram. All systems performed as designed and there was no challenge to other plant systems. There was no impact to the health and safety of the public as a result of this event.

A review of this event determined that a Safety System Functional Failure (SSFF) has not occurred as defined in Nuclear Energy Institute (NEI) 99-02...

**CAUSE OF OCCURRENCE**

The RCE identified the following root causes:

- (1) Failure of improperly soldered joint;
- (2) Communication of the test discrepancies not added to the corrective action program (CAP) by the individual who discovered the condition; and
- (3) Supplemental personnel expectations not clearly communicated with regards to reporting deficiencies found.

The testing in September of 2008 identified that the solder joint at HCU 22-11 had an air leak that was "beyond bubbling". The leak was blowing air out of the fitting almost one-half way around the 1/2 inch fitting at a rate that did not allow bubbling of the snoop solution. The specific details of the leak were not communicated to the system manager directly. The leak was described in a note in the remarks portion of the work plan (CAP number 30164922) as "North HCU 1.5 inch header has a large leak at the 1/2 inch bull, feeding the H1BF-2211-V116 valve". This note was not detected by the system manager when compiling the notifications for addressing the discrepancies noted during the test.

A review of the pictures of the failed connection revealed that there was inadequate insertion of the tubing at the connection and that there was inadequate solder wetting along the connection as well. The review indicates that the joint was poorly made at the time of construction.

**PREVIOUS OCCURRENCES**

The RCE noted that there were two previous events at Hope Creek Generating Station (HCGS).

In 1989 a similar connection failed at HCU 34-59, also causing a reactor scram. The corrective actions included physically testing each similar connection, leak checking connections and radiography of similar joints prior to re-start. Long term corrective actions were to implement a testing program for instrument air piping during the current refuel outage.

In 1997 a similar connection separated during maintenance on a nearby fitting. The corrective action instituted was the performance of a single point vulnerability study that resulted in the surveillance that was being performed in September 2008 – perform periodic sonic inspections of the scram air header.

**LICENSEE EVENT REPORT (LER) U.S. NUCLEAR REGULATORY COMMISSION**

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**NARRATIVE**

**CORRECTIVE ACTIONS**

The RCE identified the following corrective actions to preclude recurrence (CAPRs):

- (1) The separated joint was re-soldered and re-tested satisfactorily.
- (2) Revise the supplemental contractor procedure (AP-1) to include the requirements for writing CAP notifications.

Additional corrective actions (CAs) reviewed and addressed include:

- (1) Implement recurring PM to monitor the leaks in Technical Evaluation 80098784. Future threaded fitting leaks that cannot be repaired will use this Technical Evaluation.
- (2) Present to the Plant Health Committee (PHC) for creation of a temporary modification or design change package that may be used if future leaks are identified on soldered joints (i.e. apply a clamp). This will be used for compensatory action for all future soldered fitting leaks that cannot be immediately repaired.
- (3) Revise Maplewood Testing Services (MTS) Orientation and Certification Program to include training of MTS personnel on procedure AP-1. Add this specific OE to the orientation Training.
- (4) Conduct Stand Down with MTS employees to clearly communicate requirements of the CAP.
- (5) Review all orders assigned to MTS to ensure clear concise direction is given in terms of writing a CAP notification or supplying the data to the client organization.

**COMMITMENTS**

This LER contains no commitments.